# Improving Life for Hoosiers with Arthritis:

## The Indiana Arthritis Strategic Action Plan

## THE INDIANA ARTHRITIS INITIATIVE MISSION:

Strengthen arthritis management and prevention efforts through the dissemination of information, partnerships with community leaders and organizations, and implementation of our Indiana Arthritis Strategic Action Plan in order to provide Indiana residents with the highest possible quality of life.

Key components of the mission are:

Information: Use data to determine the populations most affected by arthritis. Disseminate this and other accurate arthritis information using media and other forms of communication.

Partnerships: Partner with community leaders and organizations to reduce the burden of arthritis and engage the collective efforts of individuals and groups.

Action: Implement the strategic plan to increase public awareness of arthritis as the leading cause of disability, optimize function and minimize pain among people with arthritis, prevent arthritis whenever possible, and address the needs of the underserved.

**Frank L. O'Bannon**
Governor

**Gregory A. Wilson, M.D.**
*State Health Commissioner*

# Indiana State Department of Health

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## Executive Summary

The Indiana State Department of Health and the Indiana Arthritis Initiative are pleased to present Indiana's first Arthritis Strategic Action Plan.

More than a third of Indiana residents, or 1.7 million people, had arthritis or chronic joint symptoms in 2001. The painful symptoms and diminished functional ability associated with arthritis, which is the leading cause of disability nationwide, contributes significantly to decreased quality of life for individuals and their families. Since the majority of sufferers are working age adults (ages 18-64), arthritis is also costly. Lost wages of people with arthritis and their caregivers are estimated to account for at least half the cost of arthritis.

Despite the disability caused by arthritis, there is room for optimism. Health care providers now realize that increasing low-impact physical activity like walking or swimming can improve mobility and reduce pain for people with arthritis, and maintaining an ideal body weight can reduce the risk of developing certain forms of arthritis. If Hoosiers were aware of their effectiveness, many of these lifestyle changes could be initiated at home.

Indeed, the actions to manage and prevent arthritis, which is typically not fatal, will help manage and prevent other potentially fatal chronic diseases, like heart disease, stroke, cancer, and diabetes. In fact, these diseases annually account for seven out of every ten deaths in America. These prescribed actions include increasing low-impact physical activity, like walking or swimming, and losing excess body weight.

The approaches contained in this Strategic Plan can engage the individual and collective efforts of Indiana citizens, and the organizations and institutions serving them, to promote early diagnosis, proper medical treatment, and self-management strategies, like appropriate exercise and weight loss. Your help in implementing this plan will benefit the people of Indiana for years to come.

Greg Wilson, MD

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State Health Commissioner
Indiana State Department of Health

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# The Indiana Arthritis Strategic Action Plan

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**Cover Credits:**

*Top right photo:* People with Arthritis Can Exercise (PACE) at the Fall Creek Branch YMCA, Indianapolis. The gentle movements increase joint flexibility, range-of-motion, and overall stamina, and help maintain muscle strength. This PACE course included some movements performed while seated and others done while standing. The Arthritis Foundation developed PACE and trains instructors. YMCA PACE courses are usually open to non-members.

*Bottom right photo:* "AquaJoints," taught at the Arthur M. Glick JCC, Indianapolis. The class is designed to increase joint flexibility, range-of-motion, and stamina. Water allows people to exercise without putting excess pressure on joints and muscles, which many people find liberating. The Arthritis Foundation trains instructors and co-developed the program with the YMCA. Classes are offered in heated pools at facilities, like the JCC and YMCAs, which welcome non-members.


### Acknowledgements

The Indiana State Department of Health thanks the Indiana Arthritis Initiative (IAI) Steering Committee Members for their dedication in directing this effort and work group members and other contributors for their commitment. Without their volunteered time and energy, none of this would be possible. (Please see Appendix A for a member list.) The IAI thanks Elizabeth Hamilton-Byrd, MD, medical epidemiologist, Epidemiology Resource Center, Indiana State Department of Health, for analyzing hospital discharge data, and Jon Lewis, PhD, Director, Data Analysis Team, Indiana State Department of Health, for assistance with BRFSS data interpretation.

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## INTRODUCTION

### ARTHRITIS FACTS

There are more than 100 diseases and conditions collectively known as "arthritis." The most common forms include osteoarthritis, rheumatoid arthritis, juvenile rheumatoid arthritis, fibromyalgia, bursitis, lupus, and gout. Though their causes may vary, these diseases often occur in or around one or more joints. Sometimes the problem is in the joints (as in osteoarthritis). Other times it is in the surrounding ligaments, tendons, or muscles (as in fibromyalgia). Some forms of arthritis are systemic and can affect the internal organs (as in rheumatoid arthritis).

Three of the most common forms of arthritis include:

- **Osteoarthritis (OA)** is most common, estimated to affect at least 21 million Americans.[3] Laypeople sometimes call it "everyday" or "wear and tear" arthritis. A slippery material called *cartilage* covers the end of each bone and acts as a shock-absorbing cushion. In OA, cartilage starts to break down. Loss of that rubbery cushion in a joint—where bone meets bone—leads to symptoms of pain, stiffness, and swelling in the knee, hip, spine, feet, thumb, or fingers.

  **Current research contradicts accepted wisdom that OA "is a natural part of aging."** There is evidence that obesity is a significant risk factor in the development and progression of osteoarthritis. Even modest weight loss can reduce the risk of developing OA.

  Once OA symptoms have begun, weight-bearing activities can help improve function. Physical activity and specific strengthening exercises strengthen the muscles around joints, which stabilize them, and enhance *proprioception*, which is a sense of joint position that the body uses to maintain balance. In addition, moving joints through their full range of motion can reduce stiffness and pain. Lastly, losing excess weight may retard the damage caused to weight-bearing joints (like knees) by obesity and may also reduce symptoms. **In 2000, 73.5 percent of all arthritis-related hospitalizations in Indiana were due to OA.**

- **Fibromyalgia** affects muscles and is characterized by diffuse pain, fatigue, memory difficulties, disturbed sleep, and specific tender points. It occurs more often in women.

  Exercise is a key component of fibromyalgia treatment. Aerobic exercise has been shown to improve muscle fitness, reduce pain, and improve sleep; low impact activities, like walking, bicycling, or swimming, are recommended. Even for people who have been completely inactive and can only exercise a minute or two at the beginning, the goal is to slowly work towards aerobic fitness. Other treatments include medications to reduce pain and improve sleep, stretches to improve muscle tone, relaxation techniques, and pain management strategies.

- **Rheumatoid arthritis (RA)** is estimated to affect up to 1.5 percent of the nation's population.[4] RA occurs more often in women. It is frequently first diagnosed during a woman's child-bearing years. RA is a systemic, autoimmune disease, whose cause is unclear. RA is characterized by inflammation of the fluid lining the joints called *synovium*. The inflammation causes pain, stiffness, fatigue, redness, swelling, and warmth in the area around the joint. Over time, the inflamed joint lining can damage or deform the joint.

## WHY ARTHRITIS MATTERS TO INDIANA

- 37 percent of Hoosier adults—nearly 1.7 million residents—reported arthritis or chronic joint symptoms in 2001
- 70 percent of them were working age adults (18-64 years old)
- Arthritis is the third leading cause of work disability nationwide
- 47.3 percent of obese Hoosiers reported arthritis or chronic joint symptoms
- 24.5 percent of Hoosiers are obese
- 25.3 percent of Hoosiers with arthritis or chronic joint symptom reported fair or poor health compared to only 7.3 percent of those reporting no arthritis or chronic joint symptoms
- Women, people who are obese, and people with low income have higher rates of arthritis or chronic joint symptoms and suffer more adverse effects from their condition
- Nearly $291 million was spent for arthritis hospital admissions in 2000
- However, most arthritis care does not involve hospital admissions, so the real cost of arthritis—from lost wages, doctor visits, medications, and rehabilitation—is much higher
- Research shows that physical activity and losing excess body weight can improve mobility and reduce pain and may prevent some forms of arthritis

**"Self-management":** The beliefs and strategies that people with arthritis use on a daily basis to manage their condition, optimize their health, and feel their best.[5]

These beliefs and strategies include, but aren't limited to, such things as:

- protecting joints, through certain movements and products, to "outsmart arthritis"[6]
- using techniques to reduce pain and stress
- engaging in appropriate physical activity
- losing excess body weight
- learning to communicate your needs to others
- accepting that some days will be better than others
- knowing when to call your doctor
- taking the appropriate medications, and
- learning more about self-management.

Juli Paini, Attorney, 34, diagnosed with Juvenile Rheumatoid Arthritis (JRA) at the age of two. Her JRA has been inactive for decades, but mechanical damage to joints made several surgeries necessary, so Juli chose a profession where she could work from home while recuperating after surgery. To manage her pain, she uses massage and modified yoga, and tries not to work too late too often.

"What I want people to understand is that even with all the pain and disability, you can still have a very good life….it just takes a bit more planning and patience. Arthritis is nothing to be frightened of."

A new class of medications called *disease-modifying drugs* can slow or stop joint damage. *Biologic response modifiers* can block the inflammatory processes and reduce pain. These drugs, which greatly improve quality of life, make proper diagnosis and treatment early in the disease course more critical than ever.

**Research shows that early diagnosis, proper medical treatment, and use of self-management strategies can optimize function, reduce pain, and improve quality of life for people with arthritis. Individuals should consult with a health care provider for advice appropriate to their medical needs.**

## THE IMAGE PROBLEM

A challenge to optimizing new insights into arthritis management and prevention is the popular image of arthritis held by the general population. On one hand, it may never occur to some that the twinge in their knee or the ache in their back could be osteoarthritis. On the other hand, many people see arthritis as an inevitable fact of aging and may believe that nothing, other than medication, can relieve the pain and reduced mobility brought on by osteoarthritis and other types of arthritis.

Interestingly, these beliefs are found among health care professionals as well as the general public.

In addition, given the steeper costs and higher death rates of cancer, heart disease, and diabetes, policy-makers often do not consider arthritis a pressing public health issue.

**With continued funding from the CDC and additional partnerships, arthritis management and prevention messages will increasingly be heard in different forums and venues throughout Indiana: this is the hope of the Indiana Arthritis Strategic Action Plan.**

## INDIANA ARTHRITIS INITIATIVE (IAI)

### BACKGROUND

In 1998, the Centers for Disease Control and Prevention (CDC), the Arthritis Foundation (AF), and the Association of State and Territorial Health Officials jointly released the *National Arthritis Action Plan: A Public Health Strategy* (NAAP), a national charter for addressing arthritis. By focusing on arthritis, the CDC acknowledged a chronic disease that, while contributing little to national mortality (i.e. death) rates, contributes greatly to disability and a diminished quality of life.

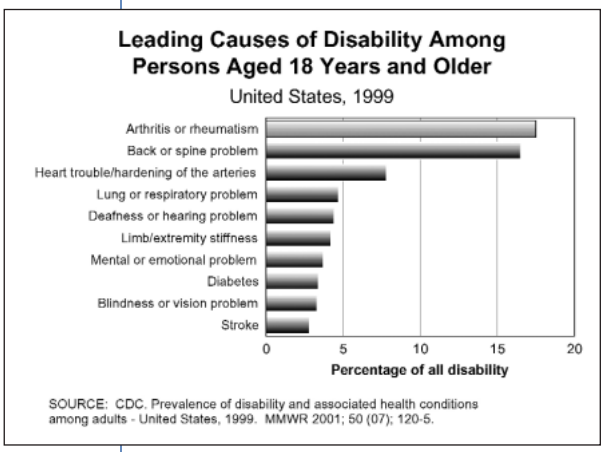
The CDC began funding states to develop state arthritis programs. **CDC-funded programs emphasize improving life for people with arthritis by encouraging early diagnosis, proper treatment, and self-management strategies.** In 1999, the Indiana State Department of Health (ISDH), Chronic Disease Division, applied for and was awarded funding. (To learn more about the CDC program, see http://www.cdc.gov/nccdphp/arthritis/index.htm. To view NAAP, see http://www.cdc.gov/nccdphp/pdf/naap.)

The IAI—the state's arthritis program—is facilitated by the Chronic Disease Division of the ISDH. A steering committee (see Appendix A for member list) directs the overall efforts of the IAI.

The steering committee's first task was to charge IAI with five goals:

- Determine the impact of arthritis on Hoosiers
- Increase awareness and education among people with arthritis and groups at high-risk for arthritis, including underserved populations
- Increase the use of self-management resources and programs among people with arthritis, including in underserved populations
- Strengthen and support clinical practices of health care providers serving people with arthritis, including underserved populations
- Promote system changes and increase linkages between systems to increase arthritis-related public health capacity and competence.

Arthritis is the leading cause of disability[1] among Americans and the third leading cause of work disability, after back disorders and heart disease.[2]




### DEVELOPING THE INDIANA ARTHRITIS STRATEGIC ACTION PLAN

With the goals decided, the next step was to set priorities. A work group was formed for each goal. They are: Data and Surveillance, Public Education, Self-Management, Clinical Practices, and Policy/Systems. All steering committee members serve on the group of greatest personal or professional interest. To be more inclusive of expertise and target population access, other work group members were added. ISDH staff serve on the committee and on work groups. (See Appendix B for membership form.)

Each work group met and drafted objectives which were further refined and then finalized by the steering committee. The same process was used to develop strategies for bringing objectives to fruition. Each work group drafted strategies that were refined by the steering committee, circulated back to work groups and other contributors, and finalized by the steering committee. **These goals, objectives, and strategies (pgs. 10-15) are the core of the plan and are driven by data.**

The steering committee convened its first meeting in November 2002, and met monthly through June 2003 to develop the strategic plan, joined on alternating months by additional work group members. Work groups also worked on their tasks between meetings. The plan was completed in June 2003.

# WALKING

# BIKING

Two 90 year-old members of a JCC "AquaJoints" aquatics class

# ARTHRITIS AQUATICS

Programs that promote physical activity, appropriate weight maintenance, and successful arthritis management are a good investment and should be made more available throughout the state.

## THE BURDEN OF ARTHRITIS

**"Burden" refers to the rate of disease, functional limitations, reduced quality of life, work disability, lost wages, and costs associated with arthritis.** The following information is based on data from the 2001 Behavioral Risk Factor Surveillance System (BRFSS) survey. The survey is administered in all states with funding from the CDC. Adults 18 years and older are randomly phoned at home and asked about personal behaviors that increase risk for one or more of the leading ten causes of death and disability. The full burden report, entitled "Arthritis and Indiana: Our State's Burden," is available at the ISDH Web site (http://www.in.gov/isdh/dataandstats/arthritis/index.htm).

### AN UNEVEN BURDEN

**The burden of arthritis falls unevenly in Indiana. Some subgroups of state residents not only have higher rates of arthritis, but may also suffer worse effects.**

- **Gender**

  Women were more likely to have arthritis or chronic joint symptoms (arthritis/CJS) than men, 41.3% vs. 32.3%, respectively. While rates for the sexes were comparable for adults under 45 years old, after age 45, rates for women pulled ahead of men (see FIGURE 1).

  Women with arthritis/CJS reported a higher mean number of poor physical health days than men (10.2 vs. 7.7) and a higher mean number of poor mental health days than men (7.7 vs. 4.5). Arthritis can threaten a person's physical, psychological, social, and economic well-being, and can increase stress among family members. These strains can affect mental health.

  Women also reported more days during the last 30 days when their activities were limited (a mean of 7 vs. 5 days). **Thus, women not only have higher disease rates than men, but also self-report a higher level of adverse effects from their arthritis.**

- **Socioeconomic Status**

  Socioeconomic conditions may play a role in who gets arthritis — as they do for other chronic diseases.

  By education, 46.9% of those with less than a high school education reported arthritis/CJS vs. 28.9% of respondents with a college degree (see FIGURE 2).

  Over half (50.8%) of respondents with a yearly household income of less than $15,000 reported arthritis/CJS compared to 30.2% of those with a yearly household income of $50,000 to less than $75,000 (see FIGURE 3).

  Lower income also corresponded to limitations from CJS. Forty percent of those with a yearly household income lower than $15,000 reported limitations compared to 26.3% of those with a yearly household income from $25,000 to less than $50,000. **Lower socioeconomic status may correlate with a higher rate of arthritis and a higher level of functional limitations.**

- **Body Weight**

  Excess body weight increases pressure on weight-bearing joints and creates a greater risk for arthritis. Women who are obese are 4-5 times

FIGURE 1

**Diagnosed with Arthritis or CJS by Age, by Sex**

Indiana 2001 BRFSS

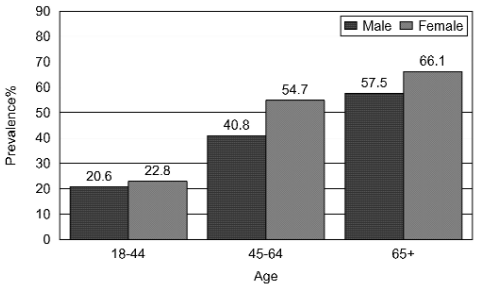



FIGURE 2

**Diagnosed with Arthritis or Have CJS by Education**

Indiana 2001 BRFSS

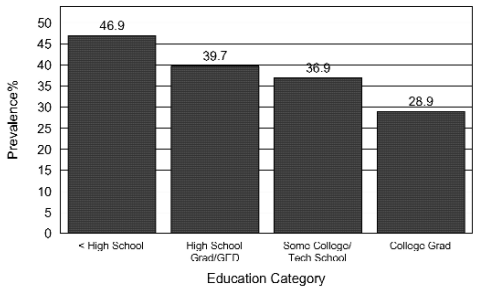



FIGURE 3

**Diagnosed with Arthritis or Have CJS by Income**

Indiana 2001 BRFSS

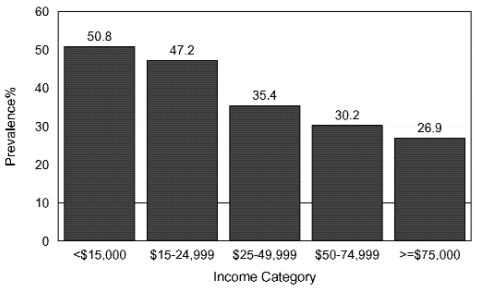



FIGURE 4

**Diagnosed With Arthritis or Have CJS by BMI Weight Category**

Indiana 2001 BRFSS

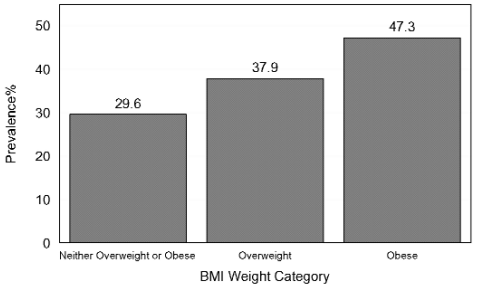


FIGURE 5

**Diagnosed with Arthritis or Have CJS by Age**

Indiana 2001 BRFSS

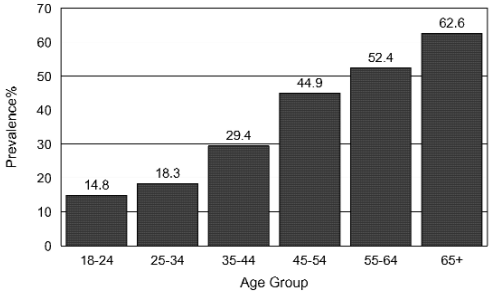



FIGURE 6

**Diagnosed with Arthritis or Have CJS by Working or Retirement Age**

Indiana 2001 BRFSS

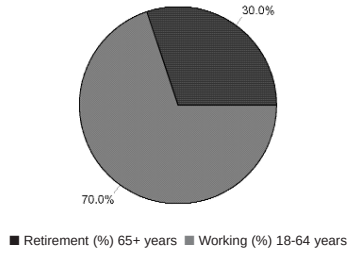



FIGURE 7

**Fair or Poor General Health by Presence of Arthritis/CJS**

Indiana 2001 BRFSS

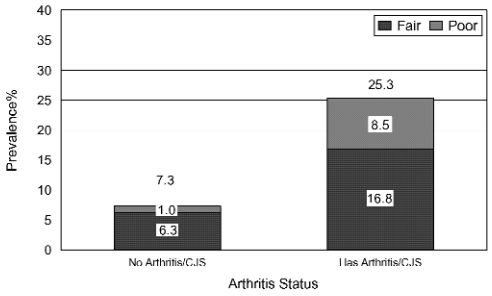
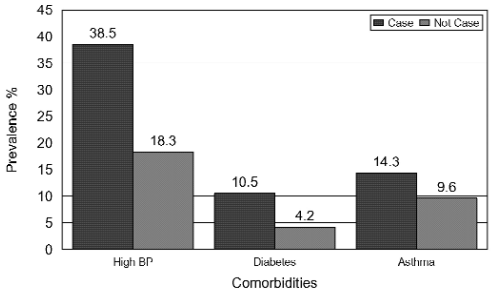



FIGURE 8

**Diagnosed with Arthritis or have CJS by Comorbidities**

Indiana 2001 BRFSS




more likely to have knee OA than women of normal weight. Being obese is associated with a higher rate of hip OA and is also positively associated with hand OA.[7] **Nearly half (47.3%) of respondents reporting obesity reported arthritis/CJS compared to only 29.6% of those of normal or underweight (see FIGURE 4). Our rank as the 6th most obese state[8] forecasts even more arthritis in our future. Even modest weight loss reduces the risk for knee OA.**

Obesity increased the likelihood that people with arthritis/CJS would face functional limitations from those symptoms. Individuals who were obese were 1.9 times more likely to report limitations from their chronic joint symptoms than individuals who were of normal weight.

- **Age**

  In each successive age category, the percentage of people with arthritis grows (see FIGURE 5).

  **However, most Hoosiers with arthritis (70%) are under the age of 65** (see FIGURE 6) (see Appendix C for state demographics) .

- **Race**

  Whites (non-Hispanic/Latino) and African Americans (non-Hispanic/Latino) reported similar rates for arthritis/CJS, 37.5% and 34.0% respectively. Hispanics/Latinos reported a somewhat lower rate of 29.2%. The younger age of the Hispanic/Latino population may be one factor contributing to their lower rate.

## ARTHRITIS AND QUALITY OF LIFE

**A quarter (25.3%) of all respondents with arthritis/CJS characterized their health as fair or poor compared to only 7.3% of people without arthritis/CJS** (see FIGURE 7).

A total of 37.4% of Hoosiers with arthritis/CJS answered "yes" to the question, "Are you now limited in any way in any activities because of joint symptoms?" compared to 6.9% of those without arthritis/CJS.

People with arthritis/CJS are more likely to have another chronic disease, which may contribute to their being more likely to characterize their health as fair or poor. Respondents with arthritis/CJS reported more high blood pressure, diabetes, and asthma than those without (see FIGURE 8).

## THE COST OF ARTHRITIS

In 2000, Indiana residents had 17,869 hospitalizations with a primary discharge diagnosis of arthritis, totaling more than **$291 million dollars**. Most of the hospitalizations (73.5 percent) were due to OA.[9] **As the state's population continues to age, the cost of arthritis will increase.**

**Since most people with arthritis do not require hospital care, hospitalization costs reflect only a part of the entire burden.** Other costs include physician visits, emergency room visits, physical therapy, occupational therapy, nursing home care, mental health counseling, x-rays, laboratory tests, and prescription and over-the-counter medications. Assistive devices like canes, crutches, and walkers, and "alternative" therapies like chiropractic, acupuncture, and glucosamine and chondroitin sulfate supplements are additional costs.

Economists estimate that 52 percent of the nation's cost from musculoskeletal conditions are due to indirect costs resulting from wage losses of people with arthritis and their caregivers.[10] Intangible costs include pain, psychological suffering, and the stress placed on families.

## WHAT WE CAN DO

### People with arthritis can reduce pain and restore or maintain joint function by:

Protecting joints. For any motion, engage the strongest, largest muscles and joints possible. Lift a sack of groceries from the bottom with both hands and hold it close to the body instead of gripping the handle with one hand. Squat down to pick something off the floor instead of bending from the waist.

Using joints appropriately. Too often, people's reaction to aching or stiff joints is to use them less. However, appropriate movement can reduce the ache and improve function. Gentle range-of-motion exercises lubricate joints and reduce stiffness. Strengthening exercises protect joints. Low-impact aerobic activities, like swimming, walking, and bicycling, increase circulation to the joints and promote general well-being. Individuals should consult with a health care provider for advice appropriate to their medical needs.

Losing excess body weight to reduce pressure on weight-bearing joints.

Learning more about self-management. Contact the Arthritis Foundation.

### Some forms of arthritis may be prevented altogether by:

Practicing sports injury prevention to avoid damage to joints and soft tissue. Warm up first and do sport-specific strengthening exercises.

Reducing repetitive joint use at the work place.

Losing excess weight. Even modest loss helps.

## "Outsmart" arthritis through self-management.

PACE (People with Arthritis Can Exercise) class participant with instructor, Marva Holland.

"I love teaching PACE because I get to show people that they don't have to give up."

Arthritis prevention should be incorporated into work place education, sports and recreation education, and well-being programs.

# The Indiana Arthritis Strategic Action Plan

This plan was designed to optimize "lessons learned" from above. The goals and objectives of the plan are broad, in order to direct efforts over the next five years for reducing arthritis pain and limitations and for preventing arthritis. Actual work strategies are restricted to the first two- and one-half years in order to make them achievable. To ensure maximum benefit, the plan is "data driven." This means that decisions about what to do, where, and when are based on the best available data. (See Appendix D for evaluation form.)

Interventions—the concerted actions undertaken to improve the lives of people with arthritis —will be *evaluated* to track and assess their effectiveness. Depending upon the type of intervention, evaluation may focus on *outcomes*, i.e., did the intervention produce the desired result, or *process* measures, i.e., was the intervention carried out properly?

## I. GOAL: Determine the impact of arthritis on Hoosiers

**Rationale for the goal:** Collect, analyze, and disseminate data on arthritis, risk factors, and the medical, social, and economic burden that arthritis places on Hoosiers. Use the data to identify the population groups most affected by arthritis and to drive planning, implementation, and evaluation of arthritis-related initiatives.

**Responsibility:** Data and Surveillance Workgroup

### OBJECTIVE 1:

Maintain and improve the surveillance and epidemiology of arthritis and arthritis risk factors on an ongoing basis.

**Strategy 1a:** Follow the CDC's suggested yearly protocol for including arthritis-related modules in Indiana's Behavioral Risk Factor Surveillance System (BRFSS) on odd- and even-years.

**Strategy 1b:** Within three months of receiving complete BRFSS data set from the CDC, analyze the data to examine distribution of arthritis, risk factors (e.g., obesity, physical activity levels), and co-morbidities. Where feasible, compare state data to national data and to data from neighboring states and perform county-level and in-state regional analyses.

*Key organization: ISDH*

### OBJECTIVE 2:

Determine the socioeconomic cost of arthritis and its related disability, and determine disparities.

**Strategy 2a:** Use BRFSS arthritis and quality of life and functional status questions to investigate disparities and socioeconomic costs for arthritis.

**Strategy 2b:** To estimate hospitalization costs:

- ISDH medical epidemiologist will analyze hospital discharge data for 2000 by May 2003.
- ISDH medical epidemiologist will receive and analyze 2001-2002 hospital discharge data from the Indiana Hospital & Health Association (IHHA) by December 2003. Analysis will occur in subsequent years per IAI program needs.

*Key organizations: IHHA, ISDH*

### OBJECTIVE 3:

Publicize findings by developing a burden report, strategic action plan, and other reports.

**Strategy 3a:** Create a web page for IAI on the ISDH web site and load the burden report and strategic action plan, as well as other pertinent links, by September 2003. Update material as needed.

**Strategy 3b:** Send mailing to media, policy makers, advocacy groups, professional organizations, libraries, local health departments, and other arthritis-relevant organizations to inform them about IAI and the strategic action plan by October 2003. When the plan is updated, consider appropriateness of an additional mailing.

**Strategy 3c:** Devote one issue of the Indiana BRFSS newsletter (sent electronically to hospitals, physicians, local health departments, health educators, and colleges and universities) to an in-depth arthritis update in 2003. Earmark one issue in subsequent even years for an update on data collected the previous year.

**Strategy 3d:** Distribute a summary of the data to media, policy makers, advocacy groups, professional organizations, local health departments, and other arthritis-relevant organizations in 2003, and each year thereafter in which BRFSS includes arthritis modules.

**Strategy 3e:** Compose a summary of the data summaries of the data specific to targeted sub-groups (such as women, seniors, people who are the obese, African Americans) in 2003 and each year thereafter in which BRFSS includes arthritis modules. Distribute summaries at events serving those sub-groups.

*Key organization: ISDH*

## II. GOAL: Increase awareness and education among people with arthritis and groups at high risk for arthritis, including underserved populations

**Rationale for the goal:** Target people in community settings with the message that something can be done to reduce arthritis-related pain and impairment. Raise awareness about the prevalence, symptoms, myths, and the importance of early diagnosis, proper treatment, and self-management. Increase self-management beliefs and behaviors through communication strategies and educational programs.

**Responsibility:** Public Education Workgroup

### OBJECTIVE 1:

Increase the availability of appropriate information as a means to increase awareness and knowledge about arthritis management and prevention.

**Strategy 1a:** Organize bilingual Public Service Announcements during Arthritis Awareness Month in May 2004 and May 2005 using multi-media community calendars, including those serving the state's Hispanic community.

**Strategy 1b:** Implement the CDC arthritis health communications campaign ("Physical Activity. The Arthritis Pain Reliever.") in at least one under-served county by July 2004.

**Strategy 1c:** Organize two public relations and/or promotional events each year through December 2005.

**Strategy 1d:** Secure yearly funding for culturally and linguistically appropriate educational materials to be distributed at events serving people at risk for arthritis (e.g. the Black & Minority Health Fair, Black Expo, Women's Expo, Senior Health and Fitness Day, Indiana Governor's Conference on Aging and In-Home Services, AARP conferences, Farm Progress Show, Fiesta Indianapolis, Mini-Marathon, the Indiana State Fair, health fairs) through December 2005.

**Strategy 1e:** Identify other programs (e.g., county extension offices, Rural Health Association, Caregiving in the Heartland, senior centers and nutrition sites, faith-based organizations, Parks and Recreation, Indiana Osteoporosis Prevention Initiative, Indiana Minority Health Coalition, Indiana Hispanic Institute) that reach populations at risk for arthritis and collaborate to incorporate patient education through December 2005. Increase opportunities to collaborate with organizations serving diverse communities.

*Key organizations: AF, ISDH, Public Education Workgroup*

### OBJECTIVE 2:

Increase the capacity of employers to promote arthritis management and prevention for their employees and to encourage healthy behaviors in the workplace.

**Strategy 2a:** Display educational material and offer to conduct a session on "arthritis in the workplace" at the annual meeting of the Hoosier Safety Council in April 2004.

**Strategy 2b:** Identify the 10 largest employers who offer worksite wellness and health promotion programs and who could benefit from adding an arthritis education component by June 2004.

**Strategy 2c:** Incorporate arthritis management and prevention messages into the programs and services of each of the 10 employers identified above by December 2005.

*Key organizations: IAI Steering Committee, Indiana Chamber of Commerce, ISDH, Public Education Workgroup*

### OBJECTIVE 3:

Educate school and community-based sport and recreation program personnel and participants on the relationship between appropriate physical activity and arthritis management and prevention.

**Strategy 3a:** Develop a contact list of personnel responsible for school and community-based sport and recreational programming (e.g., school corporations, YMCA, Parks and Recreation, Indiana High School Athletic Association, National College Athletic Association), especially in rural and underserved counties, by December 2004.

**Strategy 3b:** Identify forums (e.g., in-service trainings) to add arthritis management and prevention to sports education in school and community-based recreational programs, especially in rural and underserved counties, by December 2005.

*Key organizations: Department of Education, Department of Natural Resources, Governor's Council For Physical Fitness and Sports, ISDH, Public Education Workgroup*

### OBJECTIVE 4:

Encourage people affected by arthritis to educate local and state policy makers on the long-term impact of arthritis.

**Strategy 4a:** Identify current arthritis-related legislation and post on the Arthritis Foundation web site.

*Key organization: AF National Office, Advocacy Group*

### OBJECTIVE 5:

Promote interest in arthritis-related occupations to students during critical periods of career selection.

**Strategy 5a:** Identify five different mechanisms (such as schools, English as a Second Language programs, 4-H, FFA, Girl Scouts, Eagle Scouts, Indiana Youth Institute) for reaching youth with educational literature and brochures each year through 2005.

*Key organization: Public Education Workgroup*

## III. GOAL: Increase use of evidence-based resources and self-management programs among people with arthritis, including those in underserved populations

**Rationale for the goal:** Self-management techniques and programs have been shown to reduce pain and functional limitations, improve well-being, and reduce physician visits.[11] Target patients in clinical settings to increase use of self-management resources and programs through better promotion and increased availability of them.

**Responsibility:** Self-Management Workgroup

### OBJECTIVE 1:

Increase visibility and awareness of current arthritis programs to patients in clinical settings (such as hospitals, clinics, physician offices, and physical and occupational therapy offices).

**Strategy 1a:** Secure funding for patient education material and list of community programs to be disseminated to patients by rheumatologists, orthopedists, and primary care providers in hospitals, clinics, and physician offices. Begin

with Marion and Delaware counties, initially. Identify the locations by July 2004 and distribute material to the providers by July 2005. Items include brochures, videos, and books covering the main forms of arthritis.

**Strategy 1b**: Provide patient education material free of charge to health care providers serving rural and underserved counties by July 2005.

*Key organizations: AF, ISDH, Self-Management Workgroup*

### OBJECTIVE 2:

Expand the utilization of self-management programs, such as Arthritis Foundation aquatics and Arthritis Self-Help classes.

**Strategy 2a:** Increase the number of instructors by conducting one Arthritis Self-Help Course Training (goal of 15 instructors) and one Arthritis Aquatics Training (goal of 15 instructors) each year in 2004 and 2005 for a total of 30 new instructors per year who are able to teach classes in physician offices, hospitals, clinics, and community centers.

**Strategy 2b:** Increase the number of classes available by conducting four additional Arthritis Self-Help Courses and four additional aquatics each year in 2004 and 2005.

*Key organizations: AF, ISDH, Self-Management Workgroup*

### OBJECTIVE 3:

Identify existing arthritis-specific resources and programs (including directories such as the Indiana Directory of Disability Resources and the Rainbow Book).

**Strategy 3a:** Compile a list of existing resources and programs. Make available by December 2003 in hardcopy and electronically, on the arthritis web page of the ISDH web site.

*Key organization: AF*

## IV. GOAL: Strengthen and support clinical practices of health care providers serving people with arthritis, including underserved populations

**Rationale for the goal:** Increase primary care physicians and other health care providers' knowledge base about prevalence and current best practices in the treatment of arthritis and improve providers' ability to facilitate patient self-management.

**Responsibility:** Clinical Practices Workgroup

### OBJECTIVE 1:

Increase primary care physicians and other health care providers' level of awareness and knowledge about OA and RA prevalence, treatment, the financial and social impact of these conditions on people's ability to perform daily living activities, and the importance of self-management in order to increase providers' arthritis surveillance.

**Strategy 1a:** Increase the number of formal and informal educational opportunities on an ongoing basis (using medical association newsletters, educational forums, CME, teleconferencing, lectures, or distributing *Primer on Rheumatic Diseases*) for physicians and other health care professionals so that they may improve treatment for patients, help patients better self-manage their disease, and better understand prevalence.

**Strategy 1b:** By December 2004, assess the availability of health care providers in rural and underserved counties and their willingness to develop programs to bring about behavior change.

*Key organizations: Area Health Education Centers (AHEC), Clinical Practices Workgroup.*

*Potential Partners: Aesculapian Medical Society, Indiana Academy of Family Physicians (IAFP), Indiana Physical Therapy Association (IPTA), Indiana State Medical Association (ISMA), Indiana State Nurses Association (ISNA), Indiana Occupational Therapy Association (IOTA), Rheumatology, Rheumatology Network, Inc.*

### OBJECTIVE 2:

Transfer provider knowledge base to patients (including those with signs and symptoms of OA or RA who have not sought medical care) by acting as a conduit of information and referring patients to needed programs.

**Strategy 2a:** Support patient education, encourage self-management, and promote healthy communities (i.e., endorse increasing physical activity and maintaining an appropriate weight) on an ongoing basis. Develop patient education material, if needed.

**Strategy 2b:** Distribute educational material in clinical and community settings through December 2005; See Public Education, Objective 1, and Self-Management Work Group, Objective 1.

*Key organization: Clinical Practices Workgroup*

## V. GOAL: Promote system changes and increase linkages between systems to increase arthritis-related public health capacity and competence.

**Rationale for the goal:** Support arthritis prevention, treatment, and self-management by improving partnerships within ISDH, between other state agencies and programs, and with outside partners, so that arthritis-specific efforts can be undertaken within broad contexts. Educate policymakers on system changes needed to reduce arthritis-related pain and functional limitations and increase prevention.

**Responsibility:** Policy/Systems Workgroup

### OBJECTIVE 1:

Maintain and foster the Indiana Arthritis Initiative and its goals and activities on an ongoing basis.

**Strategy 1a:** Recruit representatives from varied arthritis stakeholders on a continuing basis to ensure a diverse, committed IAI membership.

**Strategy 1b:** Ensure that IAI goals are incorporated into other key Indiana strategic plans including the Indiana State Plan. Incorporate IAI goals into Aging and In-Home Services plan by October 2003.

**Strategy 1c:** Develop opportunities to integrate arthritis into four existing relevant ISDH programs: the Office of Minority Health, the Office of Women's Health Indiana Osteoporosis Prevention Initiative, the Community Nutrition Program, and the Governor's Council For Physical Fitness and Sports by June 2004.

**Strategy 1d:** Investigate state/federal opportunities to leverage local/state resources to increase arthritis prevention, treatment, and management services on an ongoing basis (e.g., FSSA and academic gerontology centers, Medicare/Medicaid systems change).

*Key organizations: FSSA, IAI Steering Committee, ISDH*

### OBJECTIVE 2:

Develop innovative models for promoting physical activity and weight loss among people with arthritis and groups at high-risk for arthritis.

**Strategy 2a:** Use existing state infrastructure to implement and assess an evidence-based in-home graduated physical activity program for at-risk elderly. Train Area Agencies on Aging (AAA) case managers and home health care workers to identify appropriate at-risk elderly and deliver the program. Program will begin with 6 county AAA in Lafayette region by December 2003 and will be statewide by December 2005.

**Strategy 2b:** Provide education/assessment Health Fairs at 16 AAA "congregate" senior meal sites by December 2003.

**Strategy 2c:** Use statewide network of community health centers (CHC) to strengthen clinical and patient self-management practices. Develop and distribute patient education material at CHC and promote linkages between local AAA and CHC by July 2005.

**Strategy 2d:** Develop a community model to encourage physical activity in people >50 years by December 2004.

*Key organizations: FSSA, ISDH*

## OBJECTIVE 3:

Educate policy-makers on arthritis and arthritis-related risk factors and socioeconomic costs.

**Strategy 3a:** Conduct an annual legislative function before or during the legislative session of the Indiana General Assembly by June 2005, if feasible.

**Strategy 3b:** Secure arthritis on the agenda of the Health and Provider Services committee of the Indiana Senate and the Public Health committee of the House by June 2005, if feasible.

*Key organization: IAI Steering Committee*

## OBJECTIVE 4:

Modify systems to better meet the needs of people with, and at-risk for, arthritis.

**Strategy 4a:** See Objective 2 strategies which are estimated to reach more than 100,000 people within three years. The strategies are based on current practices, which make it more likely that the changes will be imbedded permanently into the system.

**Strategy 4b:** On an ongoing basis, increase knowledge about opportunities for walking and other physical activity and encourage schools, churches, and community centers to open their facilities (i.e., walking tracks and gyms) to the public for evenings and weekends. Support efforts to build bike or walking lanes and to link parks and public resources with sidewalks.

*Key organizations: FSSA, Governor's Council For Physical Fitness and Sports, IAI Steering Committee*

## INFORMATION LINKS

For additional information, please contact:

**The Arthritis Foundation (AF)**
National Office
www.arthritis.org
(800) 283-7800

Indiana Chapter
(800) 783-2342

**Mayo Clinic**
http://www.mayoclinic.com

**MEDLINEplus**
http://www.nlm.nih.gov/medlineplus/arthritis.html

**The Centers for Disease Control and Prevention (CDC) Arthritis Homepage**
http://www.cdc.gov/nccdphp/arthritis
CDC Office of Public Inquires: (800) 311-3435

**National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)**
http://www.niams.nih.gov
NIAMS Information Clearinghouse:
(877) 226-4267

**National Fibromyalgia Association (NFA)**
http://www.fmaware.org
(714) 921-0150

**Lupus Foundation of America (LFA)**
http://www.lupus.org
(800) 558-0121

**American College of Rheumatology (ACR)**
http://www.rheumatology.org
(404) 633-3777

**American Academy of Orthopaedic Surgeons (AAOS)**
http://www.aaos.org
(800) 824-2662

**Indiana Academy of Family Physicians (IAFP)**
http://www.in-afp.org
(888) 422-4237

**Indiana State Department of Health (ISDH)**
http://www.in.gov/isdh

## APPENDIX A:
## INDIANA ARTHRITIS INITIATIVE MEMBERSHIP 2002-2003

### CHAIR, STEERING COMMITTEE

**McKeag, Douglas, M.D., M.S.**
AUL Professor of Preventive Health Medicine
Chair, Department of Family Medicine
Director, IU Center for Sports Medicine
Indiana University School of Medicine

### STEERING COMMITTEE MEMBERS

*=non-voting

***Albright, Joni, M.P.A.**
Assistant Commissioner
Community Health Development Services Commission
Indiana State Department of Health

**Beebe, Doug**
Director
Bureau of Aging & In-Home Services
Family and Social Services Administration
*Chair, Policy/Systems Workgroup*

**Border, Sharyl, M.B.A.**
Vice-President of Health Promotion
Arthritis Foundation, Indiana Chapter

**Davis, Henry, M.D.**
Rheumatologist

**Field, Bill, Ed.D.**
Professor
Dept of Agricultural & Biological Engineering
Purdue University

**Fife, Rose S., M.D.**
Director
Indiana University National Center of Excellence in Women's Health
Associate Dean for Research
Indiana University School of Medicine
*Chair, Clinical Practices Workgroup*

**Hughes, Gordon, M.D.**
Rheumatologist
Medical Consultants, Inc.
*Chair, Self-Management Workgroup*

***Hurrle, Mary Ann**
Health Educator
Chronic Disease Division
Indiana State Department of Health

***Jones, Cate, Ph.D.**
IAI Program Manager
Department of Public Health
Indiana University School of Medicine

**Laker, Mark**
Assistant Director
Bureau of Aging & In-Home Services
Family and Social Services Administration

**Price, Anita**
President
AARP Indiana

**Quillen, Wm. S. "Sandy," P.T., Ph.D., S.C.S.**
Associate Professor & Program Director
Physical Therapy Program
Indiana University School of Medicine

**Sevilla, Javier, M.D.**
Assistant Professor
Department of Family Medicine
Indiana University School of Medicine

**Steele, Gregory, Dr.P.H., M.P.H.**
Associate Professor
Department of Public Health
Indiana University School of Medicine
*Chair, Data and Surveillance Workgroup*

**Stein, Jeannie**
Consumer Advocate
*Chair, Public Education Workgroup*

***Stemnock, Linda**
BRFSS Coordinator
Epidemiology Resource Center
Indiana State Department of Health

**Welton, Marci, M.A.**
Patient Services Coordinator
Arthritis Foundation, Indiana Chapter

## ISDH STAFF

**Percifield, Sue, R.N., M.S.N.**
Director
Chronic Disease Division

## WORK GROUP MEMBERS

**Anderson, Nicole**
Director of Minority Health Initiative
Indiana Minority Health Coalition

**Bonds, Martha**
Program Director
Office of Minority Health
Indiana State Department of Health

**Carusillo, Barb, P.T., O.C.S.**
Clarian Rehabilitation Services

**Leija, Maria**
Case Manager
Consolidated Outreach Program
Indiana Health Center of Kokomo

**Strasburger, Barb, F.N.P.**
Family Health Center of Carroll County

## OTHER CONTRIBUTORS

**Bogdewic, Stephen P., Ph.D.**
Professor & Vice Chair
Department of Family Medicine
Assistant Dean for Primary Care Education
Indiana University School of Medicine

**Chance, Carla, R.N., C.P.H.Q.**
Cluster Coordinator
Indiana Primary Health Care Association, Inc.

**Klemm, Andrea**
Special Projects Coordinator
Office of Women's Health
Indiana State Department of Health

**McCammon, Aida**
Executive Director
Indiana Latino Institute

**McIntire, Casey**
Executive Director
Governor's Council For Physical Fitness and Sports
Indiana State Department of Health

## APPENDIX B:
### INDIANA ARTHRITIS INITIATIVE
### MEMBERSHIP FORM

**Please print this form out and complete by hand.**

1) I am interested in participating in the following (chose one workgroup):

□ Data and Surveillance Workgroup □ Clinical Practices Workgroup

□ Public Education Workgroup □ Policy/Systems Workgroup

□ Self-Management Workgroup □ Other Interest:_____

2) Name:_____

Credentials: _____

Title:_____

Organization: _____

Address:_____

_____

Phone(s):_____

Email: _____Fax: _____

Experience in field of Arthritis_____

_____

Related Affiliation: _____

3) Return to:

Arthritis Program Manager
ISDH
2 North Meridian Street, Section 6-A
Indianapolis, IN 46204
Phone: 317) 234-2561
**FAX: (317) 233-7805**
Email: arthritis@isdh.state.in.us

## APPENDIX C:
## INDIANA DEMOGRAPHICS

According to the most recent census data, Indiana's population in 2000 numbered 6,080,485 residents, which represents an increase of 9.7 percent from 1990.[12] Of those more than 6 million residents, 29.1 percent were under 20 years of age, 36.5 percent were 20-44 years old, 22.1 percent were 45-64 years old, and 12.4 percent were 65 and older.

In 2000, 9.5 percent of Hoosiers were living below poverty level (compared to 10.7 percent in 1990). Household income levels across the state were: 14.3 percent below $15,000, 27.2 percent between $15,000 to $34,999, 17.9 percent between $35,000 to $49,999, 21.4 percent between $50,000 to $74,999, and 19.3 percent were $75,000 or higher.

Slightly more than a fifth of Hoosiers (21.7 percent) live in Indiana's five largest cities: Evansville, Ft. Wayne, Gary, Indianapolis, and South Bend. Close to fourteen percent (14.2 percent) of residents live in Marion county; 23.5 percent live in counties on the "fringe" of large metropolitans (i.e., the counties surrounding Marion county or bordering Chicago); 34.5 percent live in counties with small metropolitans; 14 percent live in nonmetropolitan counties with a city of 10,000 population; and 13.8 percent live in nonmetropolitan counties without a city of 10,000 population.[13]

The state is becoming more racially diverse, with residents' self-reported race listed as: 87.5 percent white, 8.4 percent African American, 1 percent Asian, 1.2 percent more than one race, and 1.9 percent American Indian, Alaska Native, or other. Three-and-one-half percent of the state's residents identified themselves as Hispanic, up from 1.8 percent in 1990, which represents a 117.2 percent increase. Counties with the highest populations of Hispanics include Lake (12.2 percent), Elkhart (8.9 percent), Clinton (7.3 percent), Cass (7.1 percent), and Noble (7.1 percent).

Half of the state's 92 counties have been federally designated as Medically Underserved Areas (MUA) or Medically Underserved Populations (MUP). The MUA and MUP designations indicate that a geographic area (usually a county or collection of townships or census tracts) needs additional primary health care services. Factors such as the availability of health professional resources within a 30-minute travel time, the availability of primary care resources in contiguous areas, the extent of markers of high need such as high mortality rates or high poverty rates, and the percent of population over age 65 are considered in the designation process. In 15 Indiana counties, the entire county is designated as underserved, while in 33 other counties, a collection of townships or census tracts are so designated.[14]

The ISDH has made serving the underserved a top priority. A network of Safety Net Clinics was established statewide to provide primary and preventive health care to Indiana's underserved populations. The network consists of 43 state-funded community health centers (CHC), three federally funded nurse-managed clinics, and three rural health clinics.

There are 94 local health departments serving Indiana's 92 counties. These local departments, which are funded by state, local, and federal funds, provide a variety of services, including some primary care services. However, most of their efforts are directed towards promoting health and reducing disease.

## APPENDIX D:

**EVALUATION FORM • Thank you for your time!**
**Please print out form, complete, and fax to (317) 233-7805**

1) How did you find out about the **Indiana Arthritis Strategic Action Plan**?
   - □ Through professional newsletter, email, or contact
   - □ From my physician or healthcare provider
   - □ From the Arthritis Foundation
   - □ From the Internet
   - □ From media
   - □ Other: _____

2) What section(s) of the Plan were particularly interesting or useful? (check all that apply)
   - □ Why Arthritis Matters to Indiana
   - □ Introduction: Arthritis Facts and the Image Problem
   - □ Background on the Indiana Arthritis Initiative and Plan Development
   - □ Burden of Arthritis
   - □ The Strategic Action Plan (Goals, Objectives, Strategies)
   - □ Information Links
   - □ Other section: _____
   - □ All of it
   - □ Little or none was useful because _____

3) Before reading the Plan, did you know that 1 in every 3 adult Hoosiers had arthritis or chronic joint symptoms?
   - □ Yes □ No

4) Before reading the Plan, were you aware that doctors now recommend physical activity to people with arthritis to reduce arthritis pain and loss of function?
   - □ Yes □ No

5) Are you aware of any gap in services in your community for people with arthritis?
   - □ Yes □ No

   If Yes, please explain: _____

6) Will the Plan help guide your work?
   - □ Yes □ No □ Not applicable

7) Which best describes your interest in arthritis? (check all that apply)
   - □ Provide medical services
   - □ Provide non-medical services
   - □ Other: _____
   - □ Have arthritis/loved one has arthritis
   - □ Legislator or other policy maker

**Fax to (317) 233-7805 • Thank you for your comments!**
**Or mail to: Arthritis Program, ISDH, 2 N. Meridian, 6-A, Indpls., IN 46204**

**Other Comments**: _____

## APPENDIX E:
## ABBREVIATIONS and DEFINITIONS

**AF:** Arthritis Foundation (AF). The nation's largest volunteer organization dedicated to addressing arthritis. The mission of the AF is to improve lives through leadership in the prevention, control, and cure of arthritis and related diseases.

**Arthritis/CJS:** A classification of having arthritis or chronic joint symptoms (CJS) was based on responses to questions in Indiana's 2001 Behavioral Risk Factor Surveillance System (BRFSS) survey. Respondents were considered to have physician-diagnosed arthritis if they answered yes to the question, "Have you ever been told by a doctor that you have arthritis?" Respondents were considered to have chronic joint symptoms if they answered yes to two questions: "During the last 12 months, have you had pain, aching, stiffness, or swelling in or around a joint?" and "Were these symptoms present on most days for at least one month?" Respondents reporting EITHER physician-diagnosed arthritis or chronic joint symptoms were classified as having arthritis/CJS.

**BRFSS:** Behavioral Risk Factor Surveillance System (BRFSS) survey is an annual survey, administered in all 50 states and funded by the CDC, in which residents 18 years and older are randomly phoned at home and asked about personal behaviors which increase risk for one or more of the leading 10 causes of death and disability.

**Burden:** The burden of arthritis includes the rates of disease, functional limitations, reduced quality of life, work disability, lost wages, and medical costs associated with arthritis.

**Bursitis:** Bursitis is an inflammation of the bursa, which is a small sac of tissue close to joints. Inflammation results in localized pain which usually resolves within a few days to a few weeks. It often results from overuse or continued pressure.

**CDC:** Centers for Disease Control and Prevention is recognized as the lead federal agency for protecting the health and safety of the people of the United States.

**Fibromyalgia:** Fibromyalgia is one of the more common forms of arthritis. It affects muscles and is characterized by diffuse pain, fatigue, memory difficulties, disturbed sleep, and specific tender points. It occurs more often in women.

**Goals:** Goals are the desired end state. They tend to be broad in scope.

**Gout:** Gout is caused when levels of uric acid in the body are too high, leading to the creation of crystals, usually in the big toe, ankles, and knees, which cause pain and swelling. It affects more men than women.

**IAI:** Indiana Arthritis Initiative is Indiana's state arthritis program. It is facilitated by the Chronic Disease Division of the ISDH and is funded by the CDC.

**ISDH:** The Indiana State Department of Health. The ISDH mission is to promote, protect, and provide for the public health of people in Indiana.

**Juvenile RA:** Juvenile rheumatoid arthritis (JRA) is the most prevalent form of arthritis in children. JRA can affect only a few joints or it can by systemic, affecting joints and internal organs. The most common features of JRA include joint inflammation, tightening of muscles, joint damage, and altered growth in the affected bones.

**Lupus:** Lupus is a chronic inflammatory disease that can affect various parts of the body, especially the skin, joints, blood, and kidneys. Lupus can range from mild, affecting only a few organs, to serious, creating life-threatening problems.

**OA:** Osteoarthritis (OA) is the most common form of arthritis, estimated to affect at least 21 million Americans. Symptoms include pain, stiffness, and swelling. The joints most commonly affected include the knee, hip, spine, feet, thumb, or fingers.

**Objectives:** Objectives, less broad in scope than goals, are ends undertaken to achieve a goal. Objectives should be specific with measurable milestones or timelines.

**RA:** Rheumatoid arthritis (RA) is an inflammatory form of arthritis that occurs more often in women than in men. It is a systemic, autoimmune disease, characterized by inflammation of the joints. The inflammation causes pain, stiffness, fatigue, redness, swelling, and warmth in the area around the joint. Over time, the inflamed joint lining can damage or deform the joint.

**Strategies:** Strategies are actions undertaken to fulfill an objective. Strategies are relatively narrow in scope and include details such as the lead organization, time frame, and objective measures of success.

## NOTES

[1]CDC. Prevalence of disability and associated health conditions among adults—United States, 1999. MMWR 2001;50(08):120-5. Please note that the definition of disability in this analysis was broader than that used in an early 1994 report. Disability was defined as self-reported or proxy-reported difficulty with one or more eight measures: 1) difficulty with one or more specified functional abilities (able to see words and letters in newspaper print, hear normal conversations, have speech understood by others, lift and carry up to 10 lbs, climb a flight of stairs without resting, and walk three city blocks); 2) difficulties with one or more activities of daily living (get around inside the home, get in and out of bed or a chair, bathe, dress, and use the toilet); 3) difficulty with one or more instrumental activities of daily living (get around outside the home, keep track of money and bills, prepare meals, do light housework, use the phone); 4) reporting one or more selected impairments (learning disabilities, mental retardation, other developmental disabilities, Alzheimer disease, senility, dementia, and other mental or emotional conditions); 5) use of assistive aids (e.g., wheelchair, cane, crutches, or walker) for 6 months or longer; 6) limitation in the ability to work around the house; 7) limitation in the ability to work at a job or business (data for people 16-67 years); and 8) receiving federal benefits on the basis of an inability to work.

[2]Cited in Stoddard S, Jans L, Ripple J, and Kraus L. Chartbook on work and disability in the United States, 1998. An InfoUse Report. Washington, DC: US National Institute on Disability and Rehabilitation Research, 1998, on http://www.infouse.com/disabilitydata/. The data is based on the National Health Interview Survey (NHIS), 1992. In the NHIS, a person can be described as having a work limitation if he or she describes a chronic health condition that prevents performance of work at all, allows only certain types of work to be performed, or prevents him or her from working regularly. Working age is considered 18-69 years old.

[3]Osteoarthritis statistic from the American College of Rheumatology Web site: http://www.rheumatology.org/patients/factsheet/oa.html.

[4]Klippel JH, Crofford LJ, Stone JH, Weyand CM, editors. "Rheumatoid arthritis: Epidemiology, pathology, and pathogenesis," In Primer on the Rheumatic Diseases, 12th Edition. Atlanta, GA: Arthritis Foundation, 2001, p. 289.

[5]Self-management definition is adapted from a model presented by Teresa J. Brady, PhD, in "Overview of evidence-based interventions" at the Fourth Annual Arthritis Grantee Conference, April 28-19, 2003, Atlanta, Georgia.

[6]The phrase "outsmart arthritis" is from The Arthritis Helpbook, 5th Edition: A tested self-management program for coping with arthritis and fibromyalgia. Loring, Kate, and Fries, James F. Cambridge, Massachusetts: Perseus Books, 2000, pp. 55-91. This book is used in the Arthritis Foundation Self-Help Courses and is also available for purchase by the Arthritis Foundation.

[7]Klippel JH, Crofford LJ, Stone JH, Weyand CM, editors. "Osteoarthritis: Epidemiology, pathology, and pathogenesis," In Primer on the Rheumatic Diseases, 12th Edition. Atlanta, GA: Arthritis Foundation, 2001, p. 285.

[8]2001 BRFSS Indiana Summary Prevalence Report, CDC. Obesity was determined by self-reported weight and height and calculation using the Body Mass Index (BMI).

[9]2000 Hospital Discharge Data. Source: Indiana State Department of Health, Epidemiology Resource Center. ICD-9 codes used to compute arthritis data were those defined by the National Arthritis Data Workgroup (NADW) which is composed of researchers from CDC, AF, and the American College of Rheumatology (ACR). For a list of the ICD-9 codes, see CDC, Arthritis prevalence and activity limitations, MMWR, June 24, 1994; 43(24):433-438.

[10]Yelin E; Callahan LF. The economic cost and social and psychological impact of musculoskeletal conditions. Arthritis Rheum. 1995 Oct;38(10):1351-62.

[11]Brady TJ, Kruger J, Helmick CG, Callahan LF, Boutaugh ML. Intervention programs for arthritis and other rheumatic diseases. Health education & behavior. 30(1):44-63,February 2003.

[12]Indiana Census 2000 data from http://www.stats.indiana.edu.

[13]Data from Epidemiology Research Center, Indiana State Department of Health.

[14]As of September 2002. MUA/MUP data from http://www.in.gov/ishd/publications/llo/shortages/shortage.htm.